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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,460	09/20/2001	Mano D. Judd	ANCO-22US/119	5846
26875	7590	06/17/2005	EXAMINER	
WOOD, HERRON & EVANS, LLP			ENG, GEORGE	
2700 CAREW TOWER			ART UNIT	
441 VINE STREET			PAPER NUMBER	
CINCINNATI, OH 45202			2643	

DATE MAILED: 06/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/960,460	JUDD ET AL.	
	Examiner	Art Unit	
	George Eng	2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12-20, 22-41, 44-52, 55 and 56 is/are pending in the application.
- 4a) Of the above claim(s) 29-35 and 48-52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-20, 22-28, 36-41, 44-47, 55 and 56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/29/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office action is in response to amendment filed 2/18/2005. Accordingly, claims 29-35 and 48-52 are withdrawn from consideration, claims 11, 21, 42-43 and 53-54 are canceled and claims 1-10, 12-20, 22-28, 36-41, 44-47 and 55-56 are pending for examination.

Election/Restrictions

2. This application contains claims 29-35 and 48-52 are drawn to an invention nonelected with traverse in Paper filed 6/22/2004. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-3, 9-10, 12-15, 20, 22-24, 26-28, 36-38, 40, 44-46 and 55-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karacaoglu et al. (US PAT. 6,684,058 hereinafter Karacaoglu) in view of Lerman (US PAT. 5,604,789).

Regarding claim 1, Karacaoglu discloses a wireless communication system comprising a base station (110, figure 4) with an antenna (255, figure 1), a first translator system (200, figure 4) having as an input first RF signals located in a first wireless communication frequency band, i.e., PCS band, and having as an output second RF signals located in a second wireless communication frequency band, i.e., ISM band, the antenna coupled for transceiving the second RF the second frequency signals associated with the translation system, and a remote system (410, figure 4) including a remote antenna (314, figure 1) for transceiving the second RF signals associated with the based station, the remote antenna system having a first path including a second translator system (300, figure 4) having as an input the second RF signals, and operable to translate the frequency of the second RF signal to output RF signals located back in the first wireless communication frequency band (col. 6 line 3 through col. 10 line 25). Karacaoglu differs from the claimed invention in not specifically teaching the remote system having a second path, which the second path is operable for outputting the second RF signals directly in the second wireless communication frequency band without frequency translation. However, Lerman teaches a remote system (14, figure 3) having a first path and a second path, the first

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path including a converter (42, figure 3), i.e., a second translator system, having as an input the RF signals via dedicated link (18, figure 3) and operable to translate the frequency of the RF signals to output RF signals in the first wireless communication frequency band (F, figure 3), and the second path operable for outputting the second RF signals via dedicated line (18, figure 3) directly in the second wireless frequency band without frequency conversion, in order to provide cellular services to indoor users utilizing the attenuation properties of buildings (col. 5 line 33 through col. 7 line 67). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Karacaoglu in having the second path, which the second path is operable for outputting the second RF signals directly in the second wireless communication frequency band without frequency translation, as per teaching of Lerman, in order to provide cellular services to indoor users utilizing the attenuation properties of buildings.

Regarding claim 2, Karacaoglu discloses the remote system further comprising a distribution antenna (330, figure 1) coupled to the second translator system for transceiving the RF signals of the remote antenna system located in the first and second wireless communication frequency bands (col. 6 lines 48-52 and col. 8 lines 28-31).

Regarding claim 3, Karacaoglu discloses the first and second wireless communication frequency bands being predetermined bands of a frequency spectrum allocated by an authorized entity for wireless communications (col. 1 lines 54-57 and col. 2 lines 63-67).

Regarding claim 9, Karacaoglu discloses the signals in the first wireless communication frequency band output by the remote antenna system being configured to be used by customer premises equipment (col. 6 lines 50-52).

Regarding claim 10, Karacaoglu discloses the remote system including multiple arrays of antenna elements for defining multiple beams for the remote antenna (col. 9 lines 5-12).

Regarding claim 12, Karacaoglu discloses the remote antenna system for communicating with customer premises equipment (col. 6 lines 50-52), which the remote antenna system inherently includes a wireless hub.

Regarding claim 13, Karacaoglu discloses a wireless communication system comprising a first transceiving system (105, figure 4) including an antenna (255, figure 1) and a first translator system (200, figure 4) having as an input first RF signals located in a first wireless communication frequency band and having as an output second RF signals located in a second wireless communication frequency band, the antenna coupled for transceiving the second RF signals associated with the first translator system, a second transceiving system (410, figure 4), remote from the first transceiving system and including a remote antenna (314, figure 1) for transceiving the second RF signals associated with the base station, the second transceiving system including a second translator system (300, figure 4) having as an input the second RF signals, and operable to output RF signals located in the first wireless communication frequency band (col. 6 line 3 through col. 10 line 25). Karacaoglu differs from the claimed invention in not specifically teaching the remote system having a second path, which the second path is operable for outputting the second RF signals directly in the second wireless communication frequency band without frequency translation. However, Lerman teaches a remote system (14, figure 3) having a first path and a second path, the first path including a converter (42, figure 3), i.e., a second translator system, having as an input the RF signals via dedicated link (18, figure 3) and operable to translate the frequency of the RF signals to output RF signals in the first wireless

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communication frequency band (F, figure 3), and the second path operable for outputting the second RF signals via dedicated line (18, figure 3) directly in the second wireless frequency band without frequency conversion, in order to provide cellular services to indoor users utilizing the attenuation properties of buildings (col. 5 line 33 through col. 7 line 67). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Karacaoglu in having the second path, which the second path is operable for outputting the second RF signals directly in the second wireless communication frequency band without frequency translation, as per teaching of Lerman, in order to provide cellular services to indoor users utilizing the attenuation properties of buildings.

Regarding claim 14, the limitations of the claim are rejected as the same reasons set forth in claim 2.

Regarding claim 15, the limitations of the claim are rejected as the same reasons set forth in claim 3.

Regarding claim 20, the limitations of the claim are rejected as the same reasons set forth in claim 9.

Regarding claim 22, the limitations of the claim are rejected as the same reasons set forth in claim 1. In addition, Karacaoglu teaches the remote antenna system including the second translator system having as an input the second RF signals and operable to output RF signal located in the first wireless communication frequency band, as well as other wireless communication frequency band, i.e., third RF signals located in the third wireless communication frequency band (col. 12 lines 45-48).

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Regarding claim 23, the limitations of the claim are rejected as the same reasons set forth in claim 2.

Regarding claim 24, the limitations of the claim are rejected as the same reasons set forth in claim 3.

Regarding claim 26, the limitations of the claim are rejected as the same reasons set forth in claim 9.

Regarding claim 27, the limitations of the claim are rejected as the same reasons set forth in claim 11.

Regarding claim 28, Karacaoglu teaches the remote antenna system operable to output RF signals located in the first wireless communication frequency band (col. 12 lines 45-48).

Regarding claim 36, the limitations of the claim are rejected as the same reasons set forth in claim 1.

Regarding claim 37, the limitations of the claim are rejected as the same reasons set forth in claim 2.

Regarding claim 38, the limitations of the claim are rejected as the same reasons set forth in claim 3.

Regarding claim 40, the limitations of the claim are rejected as the same reasons set forth in claim 9.

Regarding claim 44, the limitations of the claim are rejected as the same reasons set forth in claim 22.

Regarding claim 45, the limitations of the claim are rejected as the same reasons set forth in claim 2.

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Regarding claim 46, the limitations of the claim are rejected as the same reasons set forth in claim 3.

Regarding claim 55, the limitations of the claim are rejected as the same reasons set forth in claim 22.

Regarding claim 56, Lerman teaches to transmit the RF signal in a third frequency band to CPE at the remote system (col. 7 lines 12-40).

5. Claims 4-8, 16-19, 25, 39, 41 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karacaoglu et al. (US PAT. 6,684,058 hereinafter Karacaoglu) in view of in view of Lerman (US PAT. 5,604,789) as applied in claims above, and further in view of Elrefaie et al. (US PAT. 6,243,577 hereinafter Elrefaie).

Regarding claims 4-5, Karacaoglu discloses the first wireless communication frequency band being a PCS band (col. 6 lines 13-24), which the first wireless communication frequency bands are obviously selected from a group of bands comprising Cellular 800, DCS 900, DCS 1800, PCS 1900, UMTS 1900, UMTS 2100, unlicensed 2400, UNII 5.1 GHz, unlicensed UNII 5.1 GHz, UNII 5.8 GHz and unlicensed UNII 5.8 GHz. The combination of Karacaoglu and Lerman differs from the claimed invention in not specifically teaching the second wireless communication frequency band being an MMDS band so that the second wireless communication frequency bands are selected from a group of bands comprising unlicensed 900, unlicensed PCS, MMDS 2500, WCS 2300, MMDS 3500, and LMDS. However, Elrefaie teaches a broadband wireless access system having frequency translation to local multi-point distribution system for personal communication service utilizing LMDS frequency band, which obviously

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includes a group of bands comprising unlicensed 900, unlicensed PCS, MMDS 2500, WCS 2300 and MMDS 3500, for providing communications between a base station (110, figure 3) and a picocell unit (115, figure 3), thereby extending the range of PCS systems (col. 3 line 18 through col. 5 line 4). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of Karacaoglu and Lerman in having the second wireless communication frequency band being an MMDS band so that the second wireless communication frequency bands are selected from the group of bands comprising unlicensed 900, unlicensed PCS, MMDS 2500, WCS 2300, MMDS 3500, and LMDS, as per teaching of Elrefaie, because it extends the range of PCS systems.

Regarding claims 6-8, the combination of Karacaoglu and Lerman differs from the claimed invention in not specifically teaching the remote system being incorporated within a picocell and propagates the signals in the first wireless communication frequency band in an area bounded by said picocell, wherein the translator associated with the remote antenna system is located inside a building and the remote antenna system is located inside a building. However, Elrefaie discloses a broadband wireless access system comprising a remote system being incorporated within a picocell (115, figure 3) and propagates the signal in a PCS frequency band, wherein a translator associated with the remote antenna system, as well as the remote antenna system, is located inside a house (col. 4 lines 15-56) in order to offer the possibility of significantly reducing infrastructure cost. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of Karacaoglu and Lerman in having the remote system being incorporated within a picocell and propagates the signals in the first wireless communication frequency band in an area bounded by

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said picocell, wherein the translator associated with the remote antenna system is located inside a building and the remote antenna system is located inside a building, as per teaching of Elrefaie, in order to offer the possibility of significantly reducing infrastructure cost.

Regarding claims 16-17, the limitations of the claims are rejected as the same reasons set forth in claims 4-5.

Regarding claims 18-19, the limitations of the claims are rejected as the same reasons set forth in claims 6-8.

Regarding claim 25, the limitations of the claim are rejected as the same reasons set forth in claims 4-5.

Regarding claim 39, the limitations of the claim are rejected as the same reasons set forth in claims 4-5.

Regarding claim 41, the limitations of the claim are rejected as the same reasons set forth in claims 6-8.

Regarding claim 47, the limitations of the claim are rejected as the same reasons set forth in claims 4-5.

Response to Arguments

6. Applicant's arguments with respect to claims 1-10, 12-20, 22-28, 36-41, 44-47 and 55-56 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Dupuy (US PAT. 5,659,879) discloses a method for covering shadow area in a cellular mobile radio system and radio booster for implementing the method (abstract). Leslie et al. (US PAT. 6,404,775) discloses a repeater allowing terminals of a first communications system to communicate with terminals of a second communications system (abstract).

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

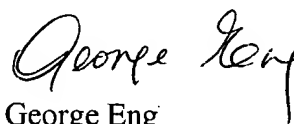
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Eng whose telephone number is 703-308-9555. The examiner can normally be reached on Tue-Fri 7:30 AM-6:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A. Kuntz can be reached on 703-305-4708. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



George Eng
Primary Examiner
Art Unit 2643